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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/419,798	10/18/1999	TOSHIHIKO MIURA	1004.1063/JD	1817

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EXAMINER	
JACKSON, MONIQUE R	
ART UNIT	PAPER NUMBER
1773	9

DATE MAILED: 04/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

A 9

Office Action Summary	Application No.	Applicant(s)
	09/419,798	KAWASAKI ET AL.
	Examiner	**Art Unit**
	Monique R Jackson	1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. The amendment filed 1/30/02 has been entered. New claims 3-5 have been added. Claims 1-5 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Sagawa et al (USPN 5,273,78) for the reasons recited in the prior office action and restated below particularly noting that Sagawa et al specifically teach that the powder layer can be applied first followed by impregnation of the resin layer (7:56-8:12), that the powder material and resin are forced into the pores of the resin-bonded magnet thereby effectively sealing the pores on the surface of the magnet and providing an improved corrosion resistant surface coating (*a filling material used to fill in depressions on a surface of said magnet and fixed with thermosetting resin*) (10:5-23), and that a protective resin coating may also be applied on the surface of the coating to enhance the strength and corrosion resistance of the entire coating and smoothen and enhance the appearance of the coating surface wherein the protective coating layer comprises the same resin as the coating layer such as a thermosetting resin (*a corrosion inhibiting coat made from a synthetic resin applied to the surface*) and has a thickness desirably from 0.5 to 300μm (9:27-47.)

As discussed in the prior office action, Sagawa et al teach the production of a resin-bonded rare-earth magnet coated with a powder layer and resin layer wherein the magnet is formed from Fe-Nd-B powder having a particle size of 100μm or less mixed with an epoxy resin and compacted under pressure to produce a resin-bonded magnet (Abstract; Example 5.) The

magnet is coated with a 1μm resin layer and a powder layer ranging in thickness from 5-10μm, wherein the resin is a thermosetting resin and the grain size of the powder material depends of the size of the work piece to be coated, the thickness of the coating, and the material of the powder, and is usually within a range from 0.05 to 500μm, and more preferably 0.1 to 50μm wherein the finer the powder material is, the smaller the striking force is and the surface roughness is lessened (12:53-68.) The resin layer is preferably applied first to bind the powder layer to the surface of the work piece however it is possible to impregnate the resin from outside the powder coating into the continuous clearances of the powder skeleton structures (7:56-8:12.) Sagawa et al teach that the powder material and resin are forced into the pores of the resin-bonded magnet, thereby effectively sealing the pores on the surface of the magnet and providing an improved corrosion resistant surface coating (10:5-23.) A protective resin coating may also be applied on the surface of the coating to enhance the strength and corrosion resistance of the entire coating and smoothen and enhance the appearance of the coating surface wherein the protective coating layer comprises the same resin as the coating layer such as a thermosetting resin and has a thickness desirably from 0.5 to 300μm (9:27-47.)

Claim Rejections - 35 USC § 103

4. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sagawa et al in view of Strnat (USPN 3,998,669) for the reasons recited in the prior office action and restated below.

The teachings of Sagawa et al are discussed above. Sagawa et al does not specifically teach limiting the particle size of the metal alloy powder and the filler material particles to 20-300μm and 0.1-15μm, respectively, as instantly claimed ranges. However, Sagawa et al does

teach ranges that encompass or overlap these ranges and further teaches that the particle size of the powder material is based on the size of the work piece, the thickness of the coating, and the material of the powder and is also a result-effective variable that affects the surface properties of the resulting coated product. Further, in terms of the metal alloy powder, Strnat teaches that the particle size of the metal alloy particles used to form a rare-earth magnet body may vary based on the particular metal alloy and that typically the alloys are used in the form of powders having a particle size between 1 and 50μm and up to 100μm or more based on the particular metal alloy and desired magnetic properties (4:1-54.) Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize routine experimentation to determine the optimum particle size for the powder material as taught by Sagawa et al and optimum particle size for the metal alloy powder for the magnet body as taught by Strnat et al based on the particular powder materials utilized for the invention taught by Sagawa et al given that the particle size is a known result-effective variable.

5. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurosawa et al (USPN 6,211,584) in view of the admitted prior art and in further view of Strnat (USPN 3,998,669) for the reasons recited in the prior office action and restated below.

Kurosawa et al teach a coating composition for providing an improved anticorrosion and insulation coating on a rare earth magnet or motor component wherein the body of the magnet can consist of an Nd-Fe-B system plastic magnet, a hot compression molded magnet or a sintered magnet and the coating composition comprises an epoxy resin and filler particles comprising micro carbon black and TiO_2 and/or SiO_2 as pigments having a relatively large diameter (Abstract; 2:46-50; 5:8-19.) Kurosawa et al teach that the coating composition comprising the

filler particles is heated such that the composition fills the pinholes in the magnet surface (*filling material used to fill in depressions on a surface of said magnet and fixed with thermosetting resin*) and forms a uniform coating layer on the surface of the magnet (*corrosion inhibiting coat made from synthetic resin applied to the surface of said magnet*) wherein the solidified coating layer covering the magnet comprises 22%-40% by weight of pigment need not be too thick and wherein the coating is applied until the desired thickness is reached with examples utilizing a coating thickness of 20-25μm (2:39-47; 3:16-24; 3:54-66; Examples.) Though Kurosawa et al do not teach the actual particle size of the carbon black, TiO_2 and/or SiO_2, in the absence of a showing of unexpected results or criticality of the instantly claimed ranges, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize routine experimentation to determine the optimum particle size of these particles to incorporate into the coating composition considering the particle size is a result affected variable affecting the ability of the coating composition to fill the pinholes and affecting the smoothness of the resulting surface of the invention taught by Kurosawa et al. Kurosawa et al does not specifically teach that the Nd-Fe-B system plastic magnet or the compression molded magnet is formed from metal alloy powders having the instantly claimed particle size bonded by a thermosetting resin however it is well known in the art that rare earth magnets such as Nd-Fe-B system plastic magnets and compression molded magnets are formed from metal alloy powders bonded by thermosetting resins as evidenced by the admitted prior art and Strnat (Background.) Further, Strnat teaches that the particle size of the metal alloy particles used to form the rare-earth magnet body may vary based on the particular metal alloy and that typically the alloys are used in the form of powders having a particle size between 1 and 50μm and up to 100μm or more based on

the particular metal alloy and desired magnetic properties (4:1-54.) Hence, it would have been obvious to one having ordinary skill in the art to determine the optimum particle size of the metal alloy powder based on the desired metal alloy as taught by Strnat to utilize in the invention taught by Kurosawa et al.

Response to Arguments

6. Applicant's arguments filed 1/30/02 have been fully considered but they are not persuasive. Applicant argues that Sagawa et al does not teach a corrosion inhibiting coat made of synthetic resin applied to the surface of the magnet but in contrast teaches a work piece coated with resin and then coated with a compacted powder layer as illustrated in Figures 18-20, and thus the surface of the structure of Sagawa et al is not comprised of a synthetic resin. However, as discussed previously and restated above, Sagawa et al teach that a protective resin coating may also be applied on the surface of the coating to enhance the strength and corrosion resistance of the entire coating and smoothen and enhance the appearance of the coating surface wherein the protective coating layer comprises the same resin as the coating layer such as a thermosetting resin and has a thickness desirably from 0.5 to 300μm (9:27-47; also refer to Figure 22.) Hence, Sagawa et al does teach a magnet structure with a surface comprising a synthetic resin. Similarly, the Applicant argues that Kurosawa et al does not disclose the claimed synthetic resin coat, however, as discussed above, Kurosawa et al teach that the coating composition comprising the filler particles is heated such that the composition fills the pinholes in the magnet surface (*filling material used to fill in depressions on a surface of said magnet and fixed with thermosetting resin*) and forms a uniform coating layer on the surface of the magnet (*corrosion inhibiting coat made from synthetic resin applied to the surface of said magnet*) wherein the

solidified coating layer covering the magnet comprises 22%-40% by weight of pigment need not be too thick and wherein the coating is applied until the desired thickness is reached with examples utilizing a coating thickness of 20-25μm (2:39-47; 3:16-24; 3:54-66; Examples.) Hence, though Kurosawa et al utilize the same synthetic resin composition to form a uniform coating layer on the surface of the magnet as the composition to fill the depressions, Kurosawa et al reads on the claim limitation "a corrosion inhibiting coat made from a synthetic resin applied to the surface of said magnet which has been rendered smooth by the application of said filling material into the depressions on the surface thereof" given that the resin composition which forms a uniform coating layer on the surface of the magnet taught by Kurosawa et al is made from a synthetic resin applied to the surface of the magnet.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R Jackson whose telephone number is 703-308-0428. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

mrj
April 15, 2002

Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700